

has the capacity to serve the entire market, but may not, in fact, because of competition, serve the entire market.

Secondly, I think we have to recognize that the models are themselves an intellectual exercise and they're going to provide incentives, however, for people in the real world. Those incentives are going to decide whether we have a good network in rural areas of this country, or we do not have a good network in the rural areas of this country. It used to be that we provided for universal service by having subsidies from other areas, such as access charges, interexchange access charges. The purpose of the Universal Service Fund is that the payments for universal service have to be sufficient to cover the forward-looking costs of providing universal service. If they are less than the forward-looking cost of providing universal service, I would say quite confidently as an economist that competitors will not invest in the network in the rural areas of this country. And one of the goals of the Telecommunications Act was that there should not be telecommunications "haves" and telecommunications "have-nots," that there should be the same technology in the rural areas as there are in the urban areas and people should have the same opportunities or information in the rural areas as in the urban areas. That will not occur if we include costs that are less than what the actual costs of building such a network is. We already have a network investment that is less than the actual costs because it has to be a continuing, efficient technology. If we include a cost of capital that's also less and

depreciation rates that are less, we will not get investment in the telecommunications network in rural areas.

Emily Hoffnar, FCC

Thank you, Jim. Labros?

Labros Pilalis, Pennsylvania Public Utility Commission

I'm encouraged by the fact that I believe now most of the models, not all of the models, are assuming a more flexible position regarding the cost of capital inputs to the model itself. I believe that gives the users choices as to what cost of capital can be inserted, and perhaps also answers one of the concerns that has been presented by Professor Vander Weide and that is the use of the appropriate capital structures. In that sense, for example, we can talk about the utilization of what is commonly called in the literature and in technical testimonies the use of optimal type forward-looking type of capital structures. In response to Professor Vander Weide's comments, again, I would like to reiterate that the purpose of the Telecommunications Act of 1996 and of the Universal Service Support Mechanisms is to encourage competitors to enter the rural markets through their eligibility to receive universal service support payments which cannot receive today. In addition to that, through appropriate use of state policies, including state policies on depreciation for incumbent telecommunications carriers, the states have a concern, and they are following it

up, on whether the appropriate infrastructure investment is being made throughout their particular jurisdictions and especially in the rural areas. That is going to continue.

Emily Hoffnar, FCC

Thank you. Bob?

Robert C. Schoonmaker, GVNW Inc./Management

I won't talk the full two minutes. I think that the issues are fairly well outlined here, the models, particularly if Hatfield 3, improves the number of accounts they're dealing with as they indicate that they will. The models seem to, as a mechanical basis, deal with these issues fairly well. It's a question of what inputs are put into them. There's obviously a wide difference of opinion as to whether that should be incumbent LEC returns, incumbent LEC historical depreciation rates, or whether it should be forward-looking depreciation rates of an efficient competitor, and forward-looking costs of an efficient competitor. And I think that's the issue the Joint Board's going to have to decide in terms of the inputs that they ask to be included in these models for USF purposes.

Emily Hoffnar, FCC

Larry?

Lawrence P. Cole, GTE Laboratories, Inc.

I agree with Richard Clarke that the models ought to be able to get the mechanics of the calculation of the annual cost factor correct. They may be essentially identical now. I don't know anything about this Gumpert's Makum stuff that's in the latest version of BCPM, so I don't know what effect that has or how much difference it makes with the latest Hatfield. I think that with respect to improvements of the models, one of my concerns has been that these models don't take growth into account. And the relevance of that for modeling capital expenses is if you look over the planning horizon and there is growth, then there's additional investment that has to be made. I think my view on the kinds of improvements that were contemplated in the previous question about fine-tuning and slicing and dicing a little more in the depreciation expenses is, I think that kind of stuff is the reason that GTE has proposed that an auction mechanism be used going forward so that we don't have to go through these things every two or three years.

Emily Hoffnar, FCC

Thank you. Any rebuttals? Oh, Susan.

Susan Baldwin, Economics and Technology, Inc.

I'll start first with my initial and then my rebuttal. No. In our October report, ETI faulted the BCM2 because these critical, clearly controversial components of the capital cost

factor had been hard-wired. The fact that now with the BCPM, the user can correct the default values for depreciation in capital structure is clearly a definite improvement and it brings the BCPM up on the same level with the Hatfield Model with this particular design feature. The default inputs in the BCPM, however, should be rejected because they are anti-competitive. They reflect an allegation of risk that simply does not exist in the local market today or for the foreseeable future and the default values for the depreciation lives reflect ILEC plans to replace plant that may, indeed, comport with their actual engineering plans for their strategic interests, but have nothing whatsoever to do with the services in question. If the Joint Board were to go with these default values in the BCPM, rather than the more reasonable default values that we seen in the Johnson Model and in the Hatfield Model, we would have a serious situation where customers of monopoly services would be bearing the cost of competitive ventures of the ILECs while, at the same time, the ILECs would be retaining the stream of revenues from these competitive services, and there's absolutely no mechanism that they're proposing for sharing those revenues with the monopoly customers. In summary, user specification is critical and we've got that now with all of the models and that's headway.

Regarding inputs, reiterating a point I made with regard to an earlier question, there's lots of good work happening at the state level with in-depth investigations of these very same issues and I think that that flow of information from State PUCs

to the Joint Board clearly is valuable. I mentioned one specific one of Utah, and I know there's others as well.

Emily Hoffnar, FCC

Now, can we go to rebuttals. Who would like to —

Richard Clarke, AT&T

Just initially, in clarification, the Hatfield Model has always had more plant accounts than the BCM Model and has always calculated it correctly. And now, in the newest form, we're still ahead of the BCM Model; we have 30 plant accounts and BCMP has 19. But I don't want to emphasize that as being a particular competitive advantage. It's not clear to me that going to 30 is a quantum improvement over 19. But getting to the main issues, that in Hatfield we put in forward-looking investments for the firm, forward-looking costs of capital and forward-looking depreciation. We do not try to cook the books here. That it is our purpose for this model to be a consistent forward-looking model in all aspects of it. Now where there appears to be disagreement is that the BCM2 — BCPM sponsors probably have a different view as to what forward-looking depreciation, in fact they do have a different view as to what forward-looking depreciation rates have than we have that we think is appropriate for the narrow band network that's being costed out. They may also have a different view about cost of capital, although the gap there doesn't seem to be quite so wide. That is the issue

here, what are the appropriate rates of these things, not that someone is not trying to — is distinctively not trying to do forward looking. That's just not the case.

Emily Hoffnar, FCC

Thank you. Ben.

Ben Johnson, Ben Johnson Associates

I'll pass this time.

Emily Hoffnar, FCC

Thank you. Jim.

James Vander Weide, Financial Strategy Associates

Yes, I have two comments, one with regard to Labros' comment that universal service payments are designed to encourage competitors. They won't do that unless the universal service payments are sufficient to cover the costs of the competitors building the network. If the universal service payments do not cover the cost of their design of a new network or of any element of a network, they won't do that, and we've seen exactly that they're not doing that right now. They're all backing out of doing that because the payments aren't sufficient. With regard to the consistency, I find that hard to believe that Rich can say that his model is consistent when it's based on a book value

capital structure of 55% equity and 45% debt. That was the same capital structure, as I said earlier, that Judge Green decided it for the LECs at the time of divestiture it was a book value capital structure. Book value capital structures include imbedded costs, not forward-looking costs, they are historical looking, not forward looking, and there's no way that a book value capital structure could be considered forward looking.

Emily Hoffnar, FCC

Thank you. Labros.

Labros Pilalis, Pennsylvania Public Utility Commission

Yes, as a matter of fact, of course, you know, today, and as we speak there are no support — universal service support mechanism payments that are explicit and along the parameters of the Federal Telecommunications Act of 1996, they simply don't exist. Now, in terms of the plans of major carriers to deploy networks or not to deploy networks in various areas, probably there is a wait-and-see attitude because, if nothing else, these carriers are enmeshed in a series of interconnection arbitration proceedings in various states. And although orders have been issued by the states on these matters, they are still figuring out the last remaining details before they sign up the appropriate agreements with the incumbent local exchange carriers in question. I don't want to sound nasty, but we also have a number of appeals that have been launched against state

decisions, particularly by GTE, on the same matters. So, definitely we are progressing, perhaps not at the speed that we would have liked to, but we are getting there.

Emily Hoffnar, FCC

Bob?

Robert C. Schoonmaker, GVNW Inc./Management

I'll pass.

Emily Hoffnar, FCC

Larry.

Lawrence P. Cole, GTE Laboratories, Inc.

I'd just like to point out that GTE General Counsel doesn't consult with me on when to initiate cases. (Laughter) Fortunately. I wouldn't know what the hell to tell him. It does make life interesting, though, for all of us. The issue here, I think, Richard Clarke again is right, it's the input values that are used. And I wish he hadn't used the terminology about "cooking the books" because I feel compelled, you know, to wonder out loud about whether certain things in the models are being targeted. These models are both very sensitive to fill factors, depreciation rates and the structure sharing. And, I think in the past, Hatfield's been very explicit and with respect to

depreciation lives and cost of capital, that they ought to be the prescribed or the existing ones and are not forward looking, are not economic depreciation lives, and that has significant consequence on the outcomes of the model. And I'll stop.

Emily Hoffnar, FCC

Thank you. Susan.

Susan Baldwin, Economics and Technology, Inc.

There's a lot of different factors that will influence whether competition develops in regular cost-areas and high-cost areas. Jim warns us that CLECs will not be going into high-cost areas if we use the Hatfield Model input because the USF subsidy will just be too low, that's how I understand his concern. But I'd like to consider the consequences of using the BCPM default values. We're then talking about a USF subsidy that is just much too high, that's not economically efficient and that's a real drag on competition. We're bumping areas into high cost that should not be considered high cost and we're increasing the level of support for those areas that are high cost. So, I think there's different angles here in competition that need to be considered as we make these decisions.

Emily Hoffnar, FCC

Thank you. Any last words?

Richard Clarke, AT&T

Okay, I'd just like to repeat again that the elements that are entered in Hatfield are our best analysis about what forward looking are. Now, just because there are embedded numbers out there that happen to match the numbers that we're using does not mean that we just are arbitrarily taking the embedded numbers in favor of using a forward-looking number. The two numbers — the regulators did a reasonable job. They were trying to go to a forward-looking number and it happens that we still — and for a number of these things agree that they did do a good job at that. The issue about what the cost of capital is. It is, what is your best estimate about what the overall cost of capital is for the assets in question. Now, I've heard arguments about book versus market value, but the fact of the matter is also that the LEC is a combination of many different activities. They are a local telco, they also provide interexchange service, they provide cellular, they provide foreign type services and things like that.

If you look at the discount rates that investment bankers apply to these different activities, it's more like 8% to 10% for telco activities, 10 to 12 for interexchange and 14 or so for cable TV or cellular type things. That you can't just look at the overall RBOC return and say that on a market value basis and say that's the cost of capital that should be applied to the telco assets in question for universal service or unbundled elements.

Emily Hoffnar, FCC

Other last words?

Ben Johnson, Ben Johnson Associates

Since we're running a little ahead of schedule, I wanted to just have another thought on the dialogue that we've been listening to back and forth about these alleged pullbacks by potential competitors. I think it would be a mistake to interpret that as an indication that either the unbundled element prices are wrong or that these models are wrong first because there's so many different variables that would need to be considered in deciding when and how much network investment to deploy. But secondly, you can equally look at that and say, well, maybe that's an indication of their success in winning the issue on the retail/wholesale discount. That from what I've seen on the state commissions, they've been getting about a 20% discount and they said all along, if you give us that kind of discount, we'd rather enter by first entering the market on a retail basis and figure out which markets respond well to our campaigns and where we've got some customers and some revenues. Then we'll start deploy technology to serve them ourselves. So, it may be that their success on that front better explains their cautiousness in investing billions of dollars in plant because they don't yet know how successful they'll be in the marketing environment.

Emily Hoffnar, FCC

Okay, any other last words?

James Vander Weide, Financial Strategy Associates

Yes, obviously their current signals do indicate what their views are. They had previously announced, in fact, that they were going to invest full speed in the local exchange network, and now they're telling us that they're not. The cable companies, Time Warner and TCI have said that, AT&T and MCI have said that they're not going to be investing in the local exchange network to nearly the large extent. In fact, where they are going to be investing are basically just the large business customers. That's a very significant pullback from what they had previously said and, in fact, why should they invest if they can buy the network elements for less than what it costs to produce them? There's absolutely no incentive whatsoever, no rational economic decision-maker would invest in a network when you can buy the network elements for less than what it costs to produce them. And no one would enter the rural markets if, in fact, their universal service payments are less than what it actually cost to provide the service.

Emily Hoffnar, FCC

Thank you. Other last words?

Labros Pilalis, Pennsylvania Public Utility Commission

I would say that, again, it is very early to judge the outcome of the various state interconnection proceedings, arbitration orders and the like. I would like to point out that, for example, in Pennsylvania we have seen what used to be a competitive access provider who came into the state initially as a competitive access provider and established a fiber optic ring in a mixed type of territory, urban and rural, now assuming the duties, the tasks, the identify of the competitive local exchange carrier, and advertising in Pennsylvania's capital in Harrisburg newspapers that "we are your new local exchange carrier." So, they have arrived, and Harrisburg, yes, it is the capital of Pennsylvania, but it is not in a huge metropolitan area and it is surrounded by rural areas.

Emily Hoffnar, FCC

Susan.

Susan Baldwin, Economics and Technology, Inc.

(Inaudible) this topic of the role of resale which is clearly an important component of a transition to a competitive marketplace. But I think it underscores the point that the ILECs for the foreseeable future are serving 100% of the market, either through retail or wholesale, and the costs that they avoid in providing resale are not capital costs.

Emily Hoffnar, FCC

Last word? Are there two? Last two words, okay.

Lawrence P. Cole, GTE Laboratories, Inc.

I'd just like to point out that because Jerry Hausman wasn't able to make it, we've not been hearing some answers to the questions, and in particular the first question, that we might have heard. And I'm certainly not qualified to substitute for him in this area, but I would remind us of the affidavit that Jerry submitted that said, look, if you've been paying attention, which I hadn't been theretofore, with modern investment theory, you would have understood that that is focusing on the critical component of the irreversibility of investments and this so-called options approach to investments and that does seem to result in some instances in indicating that — well, it seems to explain why companies have had much higher hurdle rates in the past than what you would calculate their cost of capital to be by the traditional methods. And what I don't know enough about to talk intelligently about is how that modern investment theory gets assimilated into the various cost of capital calculations. But I think the implication is that within — for firms that are contemplating a heavy proportionate irreversible investments, that the calculation that you would come up with would be somewhat higher than it would by traditional methods.

Emily Hoffnar, FCC

Thank you. Jim?

James Vander Weide, Financial Strategy Associates

One last thought following up on this point about the new entrants retrenching because — he's hypothesizing it's because the element prices that are being tentatively decided in the arbitrations and elsewhere are lower than it would cost the new entrant to do it themselves by building their own facilities. That is precisely the type of question you cannot answer with either the BCPM or Hatfield Models because they're not designed to answer that question. They would need to be changed to do the kind of thing we do, which is to size the network to a different size market share and to — what we have found when we've done that in several states, including New Jersey, is that the cost of the key elements like the loop, are significantly higher for a small carrier. A 25% share carrier we found at about 50% higher cost of the loop in the more densely populated areas, and as much as double in the rural areas. So, if your price is set right down to the long run economic cost for an incumbent, new entrant scenario at 100%, you, in fact, will discourage investment. But if, as we have advocated in that proceeding, you add a markup or a contribution to get a reasonable price, then you do create some entry opportunities.

Emily Hoffnar, FCC

Okay.

Robert C. Schoonmaker, GVNW Inc./Management

One more comment on that. I don't remember for sure, I know your model's the only one that current does that. My recollection was the documentation of BCPM indicated that there would be a market share factor entered into that model, I'm not sure whether it was in Phase 1 or Phase 2, but I thought I saw that there, but I'm not certain of it. But it's something that if that's an issue about which model you choose, at least it ought to be checked to make sure.

James Vander Weide, Financial Strategy Associates

Right, and certainly if you refer another model for other reasons, you can just direct the builders of that model they need to make that change. But I do think it's something that's very significant for other forums, the question of proper pricing. There are other features that I'll mention as long as we're talking about it that I think are also very important in other forums that are much tougher to do, such as the ability to do marginal cost. That's going to be very important when you start having entry and the pressure will be on to say "we want to cut prices to specific customers," and we need to cut them down to some reasonable floor, the floor clearly not the TELRIC price, it's potentially something lower in a special case, at least

that's the way the states have always approached those issues. They allow special contract prices, and the usual floor is something more akin to marginal costs. I think that's an important flexible feature as well.

Susan Baldwin, Economics and Technology, Inc.

Since we have time, I have a question, a clarification, actually, for Ben regarding this flexible aspect of his model that allows the user to change the market share. As we've discussed over the last few days, if you lower the market share, then the cost is going to go up because you lose some of the economies of scale and scope. As a regulator is using this design aspect of the model, are you suggesting that — whose projections of market share are you suggesting we put in there, or would you, for the sake of sizing Universal Service Fund, are you putting 100% in there?

Ben Johnson, Ben Johnson Associates

We run the illustrative study at 100% and from my reading of the Joint Board's Recommended Decision, that's the appropriate price to set it at. And similarly, the TELRIC decision of the FCC suggested that they would prefer to also run it at 100%, but there's always a possibility that they will change their mind, or certainly if people are trying to explain and say, what's really wrong here? It isn't necessarily that the price of a piece of cable is wrong, it may be that when the FCC makes that decision

to price TELRIC at a hypothetical 100% purely efficient new entrant, that that may be the lower number than, in fact, a new entrant could build it for because they've got a problem of smaller market share.

Richard Clarke, AT&T

I think there's no difficulty in the BCPM or the Hatfield Model in analyzing the effect of a smaller market share. That, in fact, I guess I'm not sure I understand exactly how Ben Johnson's Model does this, but the key way that you would adjust any of the other models to do it is by adjusting the input data to have less demand that needs to be served and calculating the model through. And the key issue is, how do you adjust the demand set to be served, do you just, you know, do you subtract out contiguous blocks of people to reduce the demand set or every fifth person and — that that's going to be the key to determining what the reduced market share cost outputs would be from the different models.

Emily Hoffnar, FCC

All right. I believe we've covered the prepared questions, and I'm anxious to get to some audience questions that we haven't heard. And can we start with our friends from outside of the Beltway in the states and hear what they have to say. They get first preference on questions, and will be followed — I believe we have plenty of time, will be followed with the remainder of

the audience. Who would like to ask first? Brian. And, could you introduce yourself, please.

Brian Roberts, California Commission

I'm Brian Roberts with the California Commission and this question is for Larry Cole. And I'm wondering, do the depreciation rates for switching recommended by TFI reflect the view that ATM switches will replace current switches?

Lawrence P. Cole, GTE Laboratories, Inc.

I don't know the answer to that, Brian. I haven't looked at the TFI stuff. I will try and get the answer for you.

Brian Roberts, California Commission

Okay, thank you.

Emily Hoffnar, FCC

Thank you. Other questions?

Roland Curry, Texas Public Utility Commission

I wanted to go — my name is Roland Curry, I'm with the Texas Public Utility Commission staff. Go back to depreciation for a moment, and you may have to speak slow because I'm asking a panel of economists a question about depreciation and I'm an

engineer, so you all be patient with me. But, explain to me what you all are describing as economic life and how that differs from the projection life approach that has traditionally been used in three-way meetings in the past. And if you can, give me not only the life, but also discuss the depreciation and an example if you have one.

Emily Hoffnar, FCC

Jim.

James Vander Weide, Financial Strategy Associates

Yes, the projection lives have basically been how long the equipment would last. Because the company did not face competition, they could base their depreciation on how long the equipment would last, rather than how long it would have economic viability. In a competitive market, you don't keep the equipment in as long as it will last, you keep it in as long as it is economically viable. If a new technology comes along that is economically justified, you would take out the old equipment and put in the new market. And in a competitive environment, especially the competitive environment we've been asked to assume here of a new entrant, those economic lives — those lives are going to be based on, when is the new technology going to come along that will economically replace the old technology? The old technology may last a lot longer yet, physically, but if a new technology produces sufficient savings in operating costs or

maintenance or anything else to justify the investment and take out the old equipment, then that is the economic life of that old equipment. And competitive market economic lives are always considerably less than the projected lives that one would look at over the last 10 or 15 years for how long the equipment actually lasted.

Roland Curry, Texas Public Utility Commission

But I guess to follow-up on that, to amplify the question a little bit, in three-way meetings in the past we have considered a lot of those economic issues in the setting of depreciation rates, so it's not just that a piece of cable would last for 28 years, it's more that it would normally last for 28 years, however because of competitive pressure we're going to do this or that and it's only going to last 20 years. So, to that extent, does the work that we've done on depreciation come closer to approximating an economic life.

Richard Clarke, AT&T

I think that Mr. Curry is very correct here, that there are generally three sources of depreciation. One is the physical wear and tear on the equipment that reduces its usefulness. The second is to the extent that what it's used to provide becomes disfavored by the public, as opposed to what can be produced by other technologies, and that we sometimes call obsolescence. And the third has to do with if there is a change in the external

price of that capital good. If now a switch is a lot more expensive, or alternatively, if installation of cable and wire facility — excuse me, if a switch is a lot cheaper, that has an effect on the effect of depreciation, or for cable and wire facilities, if it's now more expensive to place those than on the original basis, there can be an increase in the value. So, it's the combination of those three things that determines the economic depreciation. And I would agree that the regulators at the three-way meetings have tried to accommodate the effect of all of those items, and in particular, the projection lives that come out of those meetings are far less than just the lives that might be stated for the item based on wear and tear. A copper cable plant based on wear and tear can last 40 years. The projection life is more like 20 years for that type of item. Switches can last for 20 years, 25 years. AT&T has 4-E's that are around that long. But that's not the projection life out of these, it's more like 15 years. So, I think the meetings have tried to accommodate all of the elements of economic depreciation.

Emily Hoffnar, FCC

Bob.

Robert C. Schoonmaker, GVNW Inc./Management

I think that experience varies from state to state. It probably varies some by size of company. The Bell operating

companies do have three-way meetings on a regular basis. Smaller companies very often are inhibited at least in some jurisdictions in their ability to go into a depreciation proceeding because of the cost of doing that. And certainly my experience has been that the state commissions' willingness to take economic factors into account and recognize the true economic life varies between state commissions, varies between the circumstances in which a depreciation case is taken in, if it's taken in out of the context of a rate case, you may get a different result than if it's in the context of a rate case where the depreciation decision may have a direct and immediate impact on the customer's rates. So, I think there's a lot of factors there. You know, if the Texas Commission has been taking that into account I would certainly think that what you've done is closer to the economic depreciation lives. I think there may other jurisdictions and other companies where those factors haven't been taken into account and don't reflect the current economic life of the equipment. In regards to central office equipment, we have seen movement from digital essential equipment in the last three or four years from a 20-year life down towards 18 to 14 years, but again, we're seeing in many cases where those switches are being replaced in an 8- to 10-year time frame because of the economics of them.

Emily Hoffnar, FCC

Thank you. Susan.

Susan Baldwin, Economics and Technology, Inc.

Let's approach this a little bit differently and explain what I mean by an "economic life," and I'm going to say an economically efficient life. It ties back to the way that costs and revenues are allocated into the service in question. If I'm making a decision about whether to have a switch in service for 10 years or 15 years, what I should be doing is looking out over the planning horizon, look at the costs associated — the differential costs associated with 10 years versus 15 years, and look at the stream of revenues that come back to the service in question. If by deploying a new switch in 10 years rather than 15 years I get a new stream of revenues and that's affecting my overall business case, that's all well and good and might be the reason that an ILEC legitimately puts in a new switch in 10 years. But if that stream of revenues that effecting my business case does not flow back into the cost proxy model because it has to do with video services, broad band services, then it is irrelevant to the economically efficient life in this case. You need to look at the cost and revenues and keep them on the same side of the wall and look at the business case decision. And that's what I mean by an economic life.

Emily Hoffnar, FCC

Larry?